CTB Joint SEMINAR Series

Theme: CFS as a Prediction System and Research Tool
Climate Test Bed (CTB)
Center for Ocean-Land-Atmosphere Studies (COLA)

Circulation Regimes in the CFS Interactive Ensemble: Promises and Challenges

Speaker: **David M. Straus**
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and Center for Ocean-Land-Atmosphere Studies

Date: Wednesday, May 14, 2008
Time: 2:00 p.m.
Place: Room 209, NOAA Science Center (*)

The concept of circulation regimes represents one method of organizing the large and varied set of atmospheric circulation patterns that have been identified on time scales longer than a few days. The first goal of this talk is to present some results of regime structure in boreal winter for the Pacific – North American region from interactive-ensemble forecasts using the CFS. Five forecasts have been carried out for early January atmosphere / ocean initial conditions for each of 11 calendar years. Each forecast uses the interactive ensemble, in which six atmospheres are coupled to one ocean. The second goal is to show some preliminary results for the probability distribution (pdf) of ideal model errors (i.e. ensemble spread), accessible from the forecasts since all initial conditions for a given calendar year are reasonably close to each other.

In the process of pursuing these goals, a brief overview of the rich history of regimes from a dynamical point of view will be given, and the statistical methodologies behind the identification of regimes in real and simulated data touched upon. Due respect will be given to the point of view that multi-modality can not stand up to truly rigorous statistical inspection. Results from both Pacific and Atlantic basins, for both winter and summer, will be used to demonstrate the regime – weather connection. The long history of El-Nino related changes to Pacific patterns / regimes will be summarized with reference to recent work on very large ensembles of atmospheric simulations.

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